

Day: Snowflake Projections

Date: 9/20/24

Subject: Science and Math

Common Core Standard(s):

- **Science (NGSS 2-PS1-1):** *Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.*
- **Math (CCSS.MATH.CONTENT.2.G.A.1):** *Recognize and draw shapes having specified attributes, such as a given number of angles or equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.*

Objective(s): At the end of this lesson my students will be able to...

At the end of this lesson, my students will be able to:

- Investigate and describe the symmetrical patterns found in snowflakes.
- Classify snowflakes by their shapes, focusing on the identification of hexagons.
- Trace snowflake projections, demonstrating an understanding of symmetry and basic geometric shapes.

Resources/Materials List:

- Projector
- Images of snowflakes (magnified real images or drawn)
- Blank paper
- Pencils
- Rulers (optional)
- Markers and crayons
- Whiteboard or large projection screen

Procedure: Includes but is not limited to: focus, review, modeling, guiding questions, guided practice, and independent practice. This can be a detailed, bulleted list.

1. Focus/Hook (5 minutes):

- Show an image or short video of a magnified snowflake.
- <https://www.youtube.com/watch?v=qTQRbgwnRRw&t=79s>
- Ask guiding questions: “What shapes do you see? Are all snowflakes the same?”

2. Review (5 minutes):

- Briefly review previous lessons on the properties of materials and introduce the idea that snowflakes are unique objects we can classify by shape.

3. Modeling (5 minutes):

- Project an image of a snowflake on the board.
- Explain that snowflakes have symmetrical patterns and six points.
- Trace one snowflake in front of the class to model the process.

4. Guiding Questions (Ongoing):

- “What shapes do you see in the snowflake?”
- “How many points does the snowflake have?”
- “Is the snowflake symmetrical?”

5. Guided Practice (10 minutes):

- Allow students to come up one at a time to trace a projected snowflake on their own paper.
- Encourage them to observe the symmetry and count the number of points or arms (6).
- Guide students in recognizing the geometric shapes (e.g., hexagons) in the snowflake.

6. Independent Practice (10 minutes):

- After tracing, students will color their snowflakes, ensuring the colors are symmetrical on both sides of the snowflake.
- Optionally, students can use rulers to measure the symmetry and check the length of the snowflake arms.

7. Closing Discussion (5 minutes):

- Have students share their traced and colored snowflakes.
- Review the key concepts: “Snowflakes are symmetrical,” “We can classify snowflakes by shape,” and “The hexagon is a common shape in snowflakes.”

Plans for differentiation: Address the individual needs of students based on performance levels. This can also be a list describing the way you will match the instruction and instructional tasks to low or high performers. List the student’s name and a sentence describing the plan.

- **Low Performers:**
- Provide pre-drawn snowflake templates to help them focus on symmetry instead of complex tracing.
- Offer one-on-one guidance to students who may need extra support with shape recognition.
- **High Performers:**
- Challenge students to create their own symmetrical snowflake designs or identify more complex shapes within the snowflakes.
- Allow them to explore how angles form in snowflakes and measure them.

Assessment: How do you know the student met your objective? This can be a rubric, a checklist, or a statement.

- **Observation:**
- Monitor students as they trace snowflakes and participate in discussions to ensure they understand symmetry and shape classification.
- **Exit Ticket:**
- Ask students to write down one fact they learned about snowflakes and draw a geometric shape (e.g., hexagon) that they observed during the lesson.

Plans for accommodation/modification: Describe any needed accommodations

(changes in teaching method or materials), modifications (changes in learning objectives), or modified assessments needed to meet student IEP goals, objectives, or behavior plans here.

- Provide extra time for tracing and coloring activities.
- Offer assistance during snowflake tracing for students who need help with fine motor skills.
- Modify the assignment by allowing students to trace fewer snowflakes or choose a simpler shape to trace.

What's next? Teachers plan each day in relation to a bigger picture. How does this lesson relate to the unit, theme, or concept development? What do you plan to teach next? This can be a sentence.

This lesson introduces the concept of symmetry and observable properties in snowflakes. The next lesson will expand on these ideas by exploring the water cycle and how snowflakes are formed in nature. We will also continue integrating geometric shapes into nature-themed activities.

Moonaw- Snowflake Projection: Activity 3.20 x

Lesson Type and Summary: Earth Science (Weather and Climate)

In this hands-on lesson, students will explore the natural phenomenon of snowflakes by projecting images of snowflakes on a screen and tracing them. This activity will help students understand the symmetrical patterns in nature and recognize geometric shapes such as hexagons. Through guided practice and independent work, students will classify snowflakes by their observable properties, reinforcing symmetry and shape concepts.

Implementation:

- Project magnified images of snowflakes.
- Students will take turns tracing the snowflakes, identifying symmetry and classifying shapes.
- Engage in a discussion about how snowflakes form and how temperature affects their shape.

Standards Addressed:

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